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RADIAL VELOCITIES OF Me-TYPE STARS

The kinematical studies available on Mira Ceti Me-type stars have not yet allowed to obtain a clear idea of the distribution of these objects in our own Galaxy. Furthermore,these studies are not complete enough as to permit deriving the main properties of such stars considered as subsystems: Merrill (1), Merrill and Wilson (2), Kukarkin (3) and Ikaunieks (4). All this is mainly due to the scarcity of data on these peculiar stars. Therefore, it is evidently desirable to contribute with more and better data of these stars.

The method proposed by Stock and Osborn (5) offers the possibility of obtaining approximate radial velocities of numerous stars, with an accuracy of about 20 km/sec. Furthermore, the method is advantageous because it permits to analyse all the stars in a given plate and to detect high radial velocity stars.

A total of five plates covering $5^{o} \times 5^{o}$ in the sky have been taken in Ara ($\alpha = 17^{h}35^{m}$, $\delta = -53\overset{o}{.}0$, 1950) using the 24-in. Curtis Schmidt telescope of the Cerro Tololo Inter-American Observatory (Chile). The telescope-prism combination used yields a dispersion of 225 $\overset{o}{A}$/mm at Hγ. Kodak IIa-O plates were exposed for twenty minutes, widening the spectra to about 0.2 millimeters. The measurement of the positions of 13 Me-type stars found in the plates have been carried out using an Ascorecord Zeiss Jena machine and standard astrometric methods.

In the thirteen Me-type stars only the emission lines Hγ and Hδ are visible. For comparison purposes approximately 100 A and F-type stars were selected and measured in the field of each plate. In addition, radial velocities of the Me-type stars

were obtained using the method described by Stock and Osborn (5). It should be pointed out that the method developed by these authors for obtaining radial velocities using pairs of objective prism plates, gives only radial velocities relative to the average velocity of the comparison stars. The discrepancies between these velocities and the heliocentric ones are due mainly to the solar motion toward the Apex. However, this effect is practically zero at the surveyed region. Consequently, radial velocities from slit spectrograms and the present relative velocities may be directly compared.

For each Me-type star an independent radial velocity was derived from the H_γ and H_δ lines, respectively. Finally, an average velocity was obtained for each star. Unfortunately, when determining radial velocities of Me-type stars we must take into account the intrinsic kinematical properties of such stars. In fact, radial velocities of Me stars determined from emission lines are generally different from those obtained from absorption lines, this difference being about 20 km/sec. (6).

Table 1

No	α h	α m	α s	δ °	δ ′	δ ″	Phot. mag. max.	Phot. mag. min.	Radial v. Km/sec.	N
1	17	16	31.21	-53	49	41.2	13.2	16.5	-117	1
2	17	17	14.14	-53	40	46.0	13.0	17.5	-156	4
3	17	19	32.73	-51	37	12.1			+102	4
4	17	21	48.19	-51	56	12.6			-191	2
5	17	22	23.98	-55	14	44.5	13.8	16.5	- 37	1
6	17	24	55.39	-54	6	43.8	12.4	18.	- 22	4
7	17	26	20.52	-50	59	0.8			+ 9	4
8	17	29	58.83	-53	7	34.4			- 47	4
9	17	31	48.32	-55	25	41.1			+ 56	4
10	17	34	16.77	-52	32	1.9	13.5	16.7	- 80	4
11	17	38	8.77	-50	59	51.5	12.0	14.5	+ 21	4
12	17	44	25.59	-52	56	3.8			-108	4
13	17	36	22.74	-51	32	33.4			- 52	1

Results

The results are listed in Table 1, whose successive columns give: Star identification, right ascension and declination for the equinox 1950.0 (the accuracy in these coordinates are: $0^{s}.05$ and $0''.2$, respectively), the apparent photographic magnitude for the maximum and minimum, respectively, taken from Kukarkin et al. (7), the radial velocities, and number of measurements used for determining the positions and radial velocities.

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